

## REMARKS

Reconsideration of this application, as amended, is respectfully requested.

In the Final Official Action, the Examiner objects to claims 1-8, 10, 13, and 14 because of the use of the word "filed" as used therein. The Examiner suggests "filed" be changed to --field--. In response, claim 1 has been amended as suggested by the Examiner. Accordingly, it is respectfully requested that the objection to claims 1-8, 10, 13, and 14 be withdrawn.

In the Official Action, the Examiner rejects claims 1-4, 6-8, 10, and 15 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,122,089 to Minamoto et al. (hereinafter "Minamoto"). Additionally, the Examiner rejects claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Minamoto in view of U.S. Patent No. 6,201,629 to McClelland et al. (hereinafter "McClelland"). Furthermore, the Examiner rejects claims 13, 14, 16, and 17 under 35 U.S.C. § 103(a) as being unpatentable over Minamoto in view of EPO Patent No. 0 686 863 to Esashi et al. (hereinafter "Esashi"). In response, independent claims 1 and 15 have been amended to clarify their distinguishing features.

The present invention comprises a driving means, which includes a magnetic circuit. The magnetic circuit includes magnetic field generating elements (e.g., permanent magnets) which are integrally fixed to a yoke including an inner yoke, which is fixed only on the same side of the base on which the mirror structure is mounted. The mirror structure is fixed to the bonding portions offset from the base. A conductive element (e.g., a coil) formed on the first surface of a movable plate of the mirror structure is positioned so as to overlap the magnetic field generating elements (e.g., permanent magnets) of the magnetic circuit as viewed from a direction parallel to the first and second surfaces of the mirror structure. A

part of the yoke (inner yoke) is disposed in the vicinity of the first surface of the movable plate of the mirror structure. Therefore, the conductive element (coil) formed on the first surface of the movable plate of the mirror structure is disposed in a part in which the magnetic field generated by the magnetic field generating elements (permanent magnets) is strong. Also, it is easy to dispose the inner yoke in the vicinity of the first surface of the movable plate of the mirror structure. (See page 19, lines 3-13 of the present specification).

That is, in the structure of the present application, when the mirror structure is attached to the base, no member exists on the side of the base with the conductive element (e.g., coil) formed thereon, that is, the first surface of the mirror structure. Therefore, it is easier to design a magnetic circuit including the inner yoke, and also easier to attach the magnetic circuit. These are advantages not present in prior art optical deflectors, including those which are disclosed in Minamoto.

Minamoto does not suggest or disclose an optical deflector having a magnetic circuit integrally including an inner yoke fixed on the same side of the base on which the mirror structure is mounted, where the mirror structure is fixed to the bonding portions offset from the base, and a conductive element (e.g., coil) positioned so as to overlap the magnetic field generating elements (e.g., permanent magnets) of the magnetic circuit as viewed from a direction parallel to the first and second surfaces of the mirror structure as in the present invention.

In the Final Official Action, the Examiner argues that Minamoto discloses all the constituent features of claims 1 and 15 of the present invention except the structure of forming a mirror on the second surface, and a conductive element on the first surface of the movable plate, and that a person skilled in the art can easily reverse the surface for forming

the mirror and the conductive element. However, there is no motivation or suggestion in Minamoto or in the art for doing so. That is, neither Minamoto nor the art in general recognized the advantages discussed above resulting from the configuration of the present invention. Where a feature is not shown or suggested in the prior art references themselves, the Federal Circuit has held that the skill in the art will rarely suffice to show the missing feature. Al-Site Corp. v. VSI International Inc., 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999) (Rarely, however, will the skill in the art component operate to supply missing knowledge or prior art to reach an obviousness judgment). The Examiner has failed to show how Minamoto suggests forming a mirror on the second surface, and a conductive element on the first surface of the movable plate to result in the advantages discussed above.

Furthermore, in Minamoto, if the surfaces on which the mirror and the conductive element are formed are merely reversed, the mirror will be disposed facing the base, and the base will block the incidence and reflection of light. Thus, configuring the device of Minamoto as suggested by the Examiner would result in an inoperable device. “If when combined, the references ‘would produce a seemingly inoperative device,’ then they teach away from their combination.” *Tec Air Inc. v. Denso Manufacturing Michigan Inc.*, 192 F.3d 1353, 52 USPQ2d 1294 (CAFC 1999). One of ordinary skill in the art would intuitively see this, and would therefore be led away from modifying the device of Minamoto in such a manner.

To overcome the inoperability of Minamoto as configured as suggested by the Examiner, in the present invention, an opening for exposing the mirror surface is provided on the main substrate of the base, and the incidence and reflection of light is not blocked. This opening is different from the gap between the base in Fig. 18 of Minamoto. Such a gap

cannot realize a structure in which the incidence and reflection of light is not blocked.

Therefore, Minamoto does not suggest or disclose a structure of providing an opening to expose the mirror surface in the main substrate of the base.

In the present invention, the mirror structure is bonded to a pair of bonding portions projecting (offset) from the base utilizing the second surface (mirror surface), and the magnetic circuit is fixed on the base only in the same direction as the mirror structure. Due to this configuration, the following advantages are provided (which are not disclosed, suggested, or contemplated by Minamoto).

The mirror structure is fixed offset from the base, and the magnetic circuit is directly fixed to the base. Therefore, the conductive element is disposed in a part that has a stronger magnetic field. In stark contrast, the fifth embodiment of Minamoto discloses a mirror structure that is directly fixed to the magnet making it impossible to dispose the conductive element on the part that has a stronger magnetic field, and the magnetized direction is changed (See Col. 11, lines 36-48 of Minamoto)

In the optical deflectors of the present invention, since the magnetic circuit is fixed only on the same side of the base on which the mirror structure is mounted, the assembly process is easier, and it is possible to dispose the inner yoke in the vicinity of the first surface of the movable plate. Again, in stark contrast, the first embodiment of Minamoto, discloses the assembling process being complicated, because as the base is fixed to the first surface of the mirror structure, the magnetic circuit is fixed opposite the mirror structure on the base, and the inner yoke is disposed in the vicinity of the first surface of the movable plate.

Independent claims 1 and 15 have been amended to recite the features discussed above. The amendments to claims 1 and 15 are fully supported in the original disclosure, particularly at claim 10 (accordingly, claim 10 has been canceled), and in the specification from page 9, line 13 to page 10, line 6; from page 13, line 24 to page 16, line 3; and at page 19, lines 3-13. Therefore, no new matter has been introduced into the disclosure by way of the amendments to claims 1 and 15. Furthermore, the advantages of the above-stated features are described in the specification at lines 4-13 on page 19. The issue of the driving means of the present invention distinguishing from that disclosed in Minamoto was raised in the previous Response (see page 8 of the Response dated March 25, 2004). Therefore, the present amendment and arguments in support thereof do not raise a new issue. In light of the above, it is respectfully requested that the amendments to claims 1 and 15 be entered and considered by the Examiner.

Independent claims 1 and 15, as amended, are not rendered obvious by the cited references because neither the Minamoto patent, nor the McClelland Patent, nor the Esashi patent, whether taken alone or in combination, teach or suggest an optical deflector having the features discussed above. Accordingly, claims 1 and 15, as amended, patentably distinguish over the prior art and are allowable. Claims 2-8, 13, 14, 16, and 17, being dependent upon claims 1 and 15, are thus allowable therewith. Consequently, the Examiner is respectfully requested to withdraw the rejection of claims 1-8, 10, and 13-17 under 35 U.S.C. § 103(a) (claim 10 being canceled).

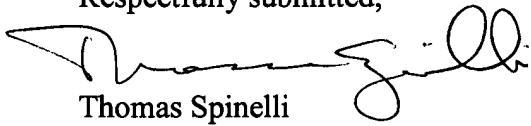
Furthermore, as discussed above, Applicants respectfully submit that Minamoto does not disclose forming a mirror on the second surface, and a conductive element on the first surface of the movable plate. Instead, the Examiner argues that a person skilled in

the art can easily reverse the surface for forming the mirror and the conductive element. As discussed above, Applicants respectfully submit that (1) there is no motivation or suggestion in Minamoto or in the art for doing so, and (2) doing so would produce an inoperable device. With regard to (1), the Examiner makes no showing of the state of the art at the time of the invention to determine whether the art contemplated the problems that are addressed and solved by the device of the present invention. Furthermore, as discussed above, where a feature is not shown or suggested in the prior art reference itself, the Federal Circuit has held that the skill in the art will rarely suffice to show the missing feature. (See, Al-Site Corp.) Therefore, since the Examiner has not made a showing of how the art in general appreciated the problems solved by the present invention and the Minamoto reference itself does not disclose or suggest such a configuration, Applicants respectfully submit that the Minamoto reference is improper and must be withdrawn.

With regard to (2) above, as discussed above, the configuration suggested as obvious by the Examiner would produce an inoperable device because if the surfaces on which the mirror and the conductive element are formed are reversed, the mirror will be disposed facing the base, and the base will block the incidence and reflection of light. Thus, configuring the device of Minamoto as suggested by the Examiner would result in an inoperable device. (See, Tec Air Inc.). Therefore, one of ordinary skill in the art would be led away from modifying the device of Minamoto in such a manner. Thus, Applicants respectfully submit that the Minamoto reference is improper and must be withdrawn.

In view of the above, it is respectfully submitted that this application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicant's attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,



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